

## **Big Push for the Development of Hydropower in India**

There has been worldwide growth in hydropower development, with 31.5 GW new capacity installed in 2016. This figure includes 6.4 GW of pumped storage – nearly double the previous year – while there is a further 20 GW of pumped storage under construction globally. This growth is indicative of impending pressure on hydropower in providing flexible support to renewable energy systems, as countries around the world take steps to meet the carbon reduction goals of the Paris Agreement.

India is the seventh largest producer of hydroelectric power in the world with the installed capacity of 49769 MW. This capacity includes 45,293 MW of large hydro, which is 13.6% of total utility electricity generation in India. Besides, small hydropower units with a cumulative capacity of 4,476 MW have been installed under renewable energy.

The hydropower sector is dominated by the Center and states with an installed capacity of 29,858 MW and 12,041 MW respectively, whereas private sector produces only 3,384 MW of hydropower.

The public sector has a dominant share of 92.5% in the hydroelectric sector. National Hydroelectric Power Corporation (NHPC), Northeast Electric Power Company (NEEPCO), Sutlej Jal Vidyut Nigam (SJVN), THDC (Tehri Hydro Development Corporation Ltd), NTPC-Hydro are some of the public sector companies engaged in the development of hydroelectric power in India. The private sector owns about 7.5% of the total capacity. However, the share of the private sector is expected to increase in the coming years. Indian companies have also constructed hydropower projects in Bhutan, Nepal, Afghanistan and other countries.

The government, to attract the private sector in the hydropower, began discussions in 2016 to extend the scope of renewable energy to include hydropower stations with capacities higher than 25 MW. This will help the government in meeting the target of producing renewable energy of 175 GW by 2022. Recently on March 13, 2018, the Standing Committee on Energy tabled its report on the parliament to resolve issues such

as providing a long-term cheaper loan, enabling infrastructure for hydropower projects and classifying all hydro projects as renewable.

Under the Paris Agreement, India is also committed to focus on clean energy expansion by 2022. In 2015, the Modi government announced that by 2022, India would have clean energy targets of 175 GW, with 100 GW for solar, 60 GW for wind, and 15 GW for other renewables. This would have given a push to hydropower sector in India. The focus of hydropower projects would be mainly on Himalayan states like Arunachal Pradesh, Assam, Himachal Pradesh, Jammu and Kashmir, Mizoram, Manipur, Nagaland, Meghalaya, Uttarakhand, Sikkim and Tripura. As per the Central Electricity Authority (CEA), the total potential hydropower in India is 1, 48,704 MW, of which 84% potential hydropower is concentrated in the Himalayan region. Additionally, Bangladesh, India and Bhutan have signed a memorandum of understanding to construct the 1,125 MW Dorjilung plant in Bhutan.

It is noteworthy that currently, coal-based power projects are under threat due to lack of coal linkages and power purchase agreements, thus stalling many existing power projects and discouraging many companies from expanding to new coal power projects. This would give a boost to hydropower projects in many regions, especially in the Himalayan regions.

Private players have been insisting that out of the total power production at least 40% should come from hydropower. In a letter written to the government last year, Association of Power Producers (APP), a forum of private power companies in India, had sought renewable energy status for hydropower projects.

In the letter, Ashok Khurana, Director-General, APP, wrote, *“For optimal load management, hydro needs to be around 40% of the energy mix. During the last three decades, the hydro generation has deteriorated considerably. The introduction of hydro purchase obligation will help restore the balance.”*

Categorizing all hydropower projects as renewable energy is not only government's agenda, but also the pressure has also been coming from private players, international financial Institutions and other actors. World Bank on its website mentions, *“The World Bank Group (WBG) will continue to support well-designed and implemented hydropower projects of all sizes for both local development and climate mitigation reasons.”*

After the Paris Agreement, there is a push to increase hydropower share with the pressure is coming from both national and international actors. As mentioned above, the Standing Committee on Energy has already tabled its report on the Parliament to bring hydropower projects of all size under renewable energy. This change will push hydropower in the Himalayan states and only increase the private sector investment. This step will also fulfil the World Bank and ADB's agenda of pushing Public Private Partnership (PPP) in the sector. It is shocking that the government of India has not learnt from the past experiences of large hydropower projects like Sardar Sarovar and Maheshwar dams on Narmada valley in Madhya Pradesh, or Bhakra Nangal Dam on Satluj Valley in Himachal. These

projects have caused displacement of thousands of people from their ancestral place, destruction of livelihoods and violation of human rights. After many years of the struggle, thousands of displaced people from the projects mentioned above are still waiting for justice.

### **The Trends in Hydro Power Financing in India**

As countries around the world take steps to meet the carbon reduction goals of the Paris Agreement, the growth in hydropower sector is indicative of impending pressure on the sector in providing flexible support to renewable energy systems. The Paris agreement does not only push the sector, but also pressures to finance this sector. Middle-income countries, especially the governments of Brazil, Russia, India, China, and South Africa (BRICS), are increasingly financing hydro and have become more assertive in advocating infrastructure development.

### **Financing Hydropower in India**

NHPC is a government-owned institution with an investment base of Rs. 38,718 crores. The authorised share of this Mini Ratna Category-1 Government of India enterprise is close to Rs. 15,000 crores, which is exclusively held by the Government. Apart from the central government funds, NHPC secures loans through commercial loan and bonds. As per the annual report of March 2017, long-term loan borrowing of NHPC stood at Rs. 17,246 crores, which comprised of Bonds, Secured Term Loans & Unsecured Foreign Currency Loans amounting to 8,493 crores, 4,479 crores and 4,274 crores respectively. The secured loans include borrowings from domestic banks and financial institutions like State Bank of India, Indian Overseas Bank, ICICI Bank Limited, Jammu & Kashmir Bank Limited, Bank of India, Axis Bank, State Bank of Patiala, State Bank of Bikaner & Jaipur, HDFC Bank, IndusInd Bank, Bank of Baroda, Central Bank of India, Kotak Mahindra Bank, RBL Bank, Life Insurance Corporation, Power Finance Corporation, and Rural Electrification Corporation.

Many innovative funding sources for hydropower project financing are coming up. Off late, an emerging trend is the rapid growth of bonds like Green Bonds, which are fixed-income loans created to specifically finance projects that help address and reduce environmental and/ or climate risks. In 2016, over USD 80 billion of labelled green bonds were issued throughout the world in 2016, nearly doubling the previous year. However, the market is still in its infancy. The Green Bond market intends to reach USD 1 trillion of investment per year by 2020 to be compatible with the Paris Agreement. Led by the multilateral development banks and corporate sector, Poland became the first country to issue a green sovereign bond in late 2016 by raising USD 750 million. France followed this in January 2017, where USD 7.5 billion was raised. Other countries including Sweden, Nigeria and Kenya are expected to follow suit. The Indian Green Bonds Council, formed in late 2017 as a joint project of Federation of Indian Chambers of Commerce Industry (FICCI) and Climate Bonds Initiative (CBI), has launched its 2017 programme. India also issued its global green bonds worth USD 3.2 billion in April 2017 and made a position in top 10 globally.

## **International Financing in Hydropower**

NHPC does not raise funds only from the domestic financial institutions but also from various international financial institutions, including export credit agencies. Multilateral Development Banks (MDB) like World Bank (WB), Asian Development Bank (ADB) and Asian Infrastructure Investment Bank (AIIB) can't lend directly to NHPC. It only receive fund through export credit or exim bank.

Apart from MDBs, there are many new bilateral agencies that are investing in hydropower through export credit agencies. As per the annual report of 2017, the current long-term borrowing from bilateral agencies — including lenders such as Deutsche Bank, Japan International Cooperation Agency (JICA), and Export Development Canada (EDC) — for NHPC stood at Rs 4,274 crores. In the past, many other bilateral export credit agencies, like Germany's KfW, Swedish International Development Corporation Agency (SIDA) and The Swedish Export Credit Agency (EKN), were involved.

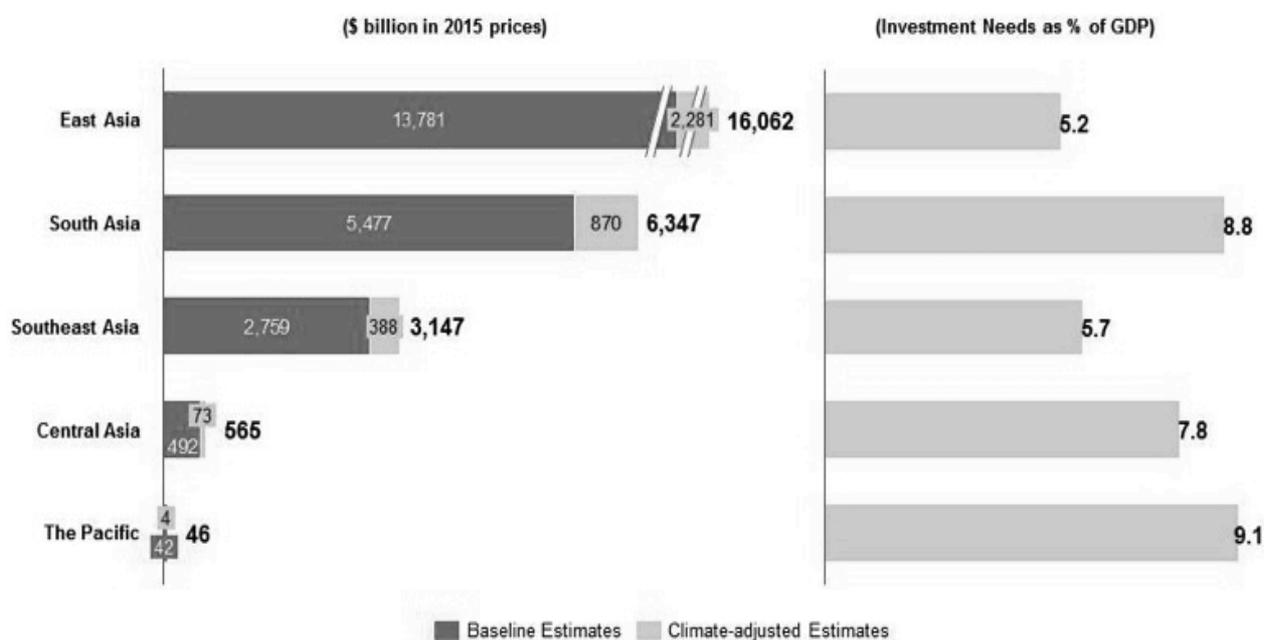
In 1990, after resistance by the Narmada Bachao Andolan (NBA) against the construction of Sardar Sarovar Dam (SSD), World Bank and other bilateral institutions stopped funding large hydropower projects in India. Despite the mounting evidence of the negative environmental and human rights impacts of the hydropower projects, the World Bank has restarted giving loans in the name of clean and renewable energy. It has become more active in funding large and smaller hydro projects. Since the 2003 Water Resources Strategy, which stated that the World Bank would re-engage in hydraulic infrastructure, about 150 projects related to hydropower – including rehabilitation, technical assistance and Greenfield projects – have been approved. This represents a total of USD 13.6 billion have financed (USD 7.8 billion for hydropower components) and includes IBRD/IDA, GEF and Recipient Executed Activities. Of the total 15 projects in the pipeline, roughly half are in Africa. The World Bank is not just lending money but is also pushing many policy changes in the energy sector through technical and financial assistance, and ease of doing business index. All this helps them in preparing the ground for private players.

World Bank's 'Ease of Doing Business' initiative ranks countries on the basis of ten parameters. 'Getting Electricity' is one of them. For 'Getting Electricity', World Bank measures the performance on four parameters: (i) Number of procedures; (ii) Time for obtaining a commercial electricity connection; (iii) Cost for obtaining a commercial electricity connection up to 140 KVA; (iv) and Reliability of power supply. According to the Power Ministry's website, India has made several reforms because of which India's ranking has improved from 99 in 2015 to 26 in 2017. These reforms include regulatory easing as well as administrative easing measures.

Apart from World Bank, Asian Development Bank (ADB) is one of the major financial institutions in the energy sector and is funding many hydropower projects in India and South Asia. In 2013, ADB committed equity investment of USD 30 million to help support the development of NSL Renewable Power Private Ltd's (NRPPL) 100-MW Tidong

hydroelectric project in Himachal Pradesh. It was their first equity investment in India's hydropower private sector. In 2008, Himachal Pradesh developed a program called Himachal Pradesh Clean Energy Development Investment Program, which was approved by ADB to expand the power supply in the state. Under this scheme, ADB, along with German Development Bank's KfW, co-financed 450 MW Shongtong Karcham hydroelectric project and three other run-of-the-river hydroelectric projects of Himachal Pradesh Corporation Limited.

**Estimated Infrastructure Investment Needs by Region, 45 DMCs, 2016-2030**



(Source: ADB)

ADB is not only financing hydro projects but is also heavily influencing the policymaking in the electricity sector. One of their major recommendation being implemented is unbundling three major components of the electricity sector generation, transmission and distribution system to bring in more private player. According to ADB, South Asian countries will be greatly benefited by a single interconnected power market that will also give India a chance to replace its fossil fuel-based energy with cleaner hydropower from countries like Bhutan and Nepal. Towards this end, ADB has committed USD 120.5 million in a mix of loans and grants to build a run-of-the-river hydropower plant in central Bhutan through a public-private partnership. Clean power generated by the plant will be sold to India, which will help in reducing its carbon emissions.

Recently, a report published by ADB on Asia's estimated infrastructure investment needs mentions that out of the total climate-adjusted investment needs of USD 26 trillion by 45 developing Asian member countries over 2016–2030, USD 14.7 trillion will be needed for

power. If one looks at South Asia's needs, its total requirement is USD 6.247 trillion, including USD 870 billion for climate adjustment at GDP growth rate of 8.8 per cent in which significant investment would be required for the power sector. ADB has invested on many controversial hydropower projects in Himachal and Uttarakhand in the Himalayan range in India. The above figures also indicate that lending of ADB in hydropower will grow in the near future.

### **Emerging New Key Player in Hydropower Financing**

Apart from the World Bank and ADB, there are many other emerging key players in hydropower. The new players could be more harmful than World Bank and ADB as they have financed many controversial projects across the border. Their mandate is to lend in infrastructure, especially the power sector. Though World Bank and other financial institutions took a step back from hydropower in the 1990s from across the world. Chinese banks have stepped in the shoes of World Bank and ADB. International Financial Corporation (IFC), a member of the World Bank Group, is investing USD 100 million in the landmark 720-megawatt Karot run-of-river hydropower project in Pakistan. Karot is IFC's largest investment in the hydroelectric power project to date and represents IFC's first major collaboration with China's Export-Import Bank, China Development Bank, and Silk Road Fund. A large number of Chinese banks are globally financing hydropower projects. These banks and other Chinese companies are involved in 330 dams in 74 countries. Between 2000 and 2016, the Chinese banks and companies were involved in 39 hydropower projects across South Asia with approximately 19,000 MW capacity and a loan of roughly USD 30 billion. Out of these 39 projects, 21 projects were in Pakistan, 15 in Nepal, and 4 in Sri-Lanka. Though political relation between India and China is not amicable, the intervention of Chinese banks and Chinese companies in India is growing. The Chinese banks come with certain conditions, like having a Chinese financier, Chinese equipment provider, and Chinese builder. These conditions push the borrower's country to compromise with their labour rights.

The two new emerging Banks — New Development Bank, and Asian Infrastructure Investment Bank — are China-led banks with headquarters also located in China. Both the institutions aim to lend to infrastructure projects, particularly energy, in developing countries. These institutions are also pushing the hydropower in the name of clean and renewable energy.

The New Development Bank has financed construction of hydropower plants in Russia by intermediaries such as Eurasian Development Bank (EDB) and International Investment Bank (IIB). This project was earlier supposed to rope in intermediary in the form of Brazilian bank which has financed several controversial projects like Belo Monte Dam, which involved corruption and host of human and environmental rights violations.

Similarly, the AIIB also wants to be ahead in the race to lend in hydropower. During its signing ceremony of MoU on the establishment of AIIB in Beijing, it had a USD 50 billion fund, which it planned to use to spur infrastructure growth in developing Asian countries with projects that include hydroelectric facilities. In 2016, AIIB's President Jin Liqun and

World Bank Group's President Jim Yong Kim signed the first co-financing framework agreement between the two institutions to co-finance expansion of Tarbela hydropower plant in Pakistan. The World Bank and AIIB announced USD 720 million to help fund the fifth extension to the plant, which will add a further 1,140 MW in capacity.

It is important to note that even if initially AIIB and NDB were projected as an alternative to the Bretton Woods institutions in the developing countries, these institutions are not very different, this is reflected not only in the similar policies but also coming together for co-financing large projects in Asia, and particularly on South Asia.

The Paris Agreement not only pressurises the countries to consider hydropower as renewable but also insists on financing it. At the same time, financial institutions are creating layers of financing model to escape from their accountability and transparency. It is essential to keep eyes on emerging financial institutions and their nature of financing, which would do more harm to damage natural resources and peoples' livelihoods. History has been witnessing displacement of millions of people, destruction of their livelihoods, and violation of human rights by these projects.

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